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June 5, 2017

Mr. Remon Habib. P.E.
Senior Engineer
Engineering Department
130 S. Main Street
Lake Elsinore, CA 92530

Subject: Proposal for 2017 Pavement Management Program

Dear Mr. Habib,

It is our pleasure to submit our proposal to assist the City of Lake Elsinore in the continued, proactive management of your Pavement Management Program (PMP). With the City seeking to move toward stronger infrastructure management methodologies through advanced pavement inspections, district maintenance, PMP software interoperability, Capital Improvement reporting (CIP), and GIS development, *Bucknam Infrastructure Group, Inc.* has identified a proactive and cost-efficient method to assist the City in implementing a successful PMP. Our team will focus our long-term PMP knowledge, extensive Riverside County experience and GIS/GPS technologies to optimize the City's maintenance dollars by implementing a manageable and reliable PMP methodology.

Our project staff can be relied upon to provide outstanding service to the City because we will assist the City in implementing a common-sense PMP, formulate a proactive CIP budget and make realistic maintenance recommendations through our:

- Relevant and accurate PMP services based on our ongoing work with numerous Riverside, Los Angeles and Orange County local agencies such as:
  - **Lake Elsinore, Hemet, Menifee, Rancho La Quinta;**
    - **Bucknam has served as Lake Elsinore's PMP consultant since 2010**
  - 18 Los Angeles County local agencies; and
  - 18 Orange County local agencies.

- Army Corps of Engineers ASTM D6433-16 compliant surveying, reporting and pavement analysis on an annual basis;

- Our project manager has worked within the SoCal Pavement Management industry for over nineteen (19) years and has worked extensively with MicroPAVER PMP software through turn-key data conversion projects to long-term, proactive pavement CIP scheduling; Mr. Peter Bucknam served as the Lake Elsinore 2010 & 2012 PMP updates;

- Project/engineering experience that brings the understanding that MicroPAVER results are not set in stone; we proactively use the available data to enhance budget forecasting, project planning and maintenance zone development;

BUCKNAM INFRASTRUCTURE GROUP, INC.
3548 Seagate Way, Suite 230 Oceanside, CA 92056
T. 760.216.6529 F. 760.216.6549 www.bucknam.net

- Cost effective management methodologies, from the project kickoff through final reporting, gained through our Project Manager's experience and use of GIS tablet-based / digital roadway imaging surveys; and

- Professional Engineering experience through Mr. Steve Bucknam, P.E. who brings 40+ years of public/private local agency experience. Mr. Bucknam has served as City Engineer, Deputy City Manager, Design Engineer and Utilities Director for numerous public agencies and brings a tremendous amount of relative pavement management knowledge to this project.

As Project Manager, my goal is not just to meet the requirements of this project but establish a living document (Arterial & Local pavement CIP submittal) that will be used throughout the term of the CIP as well as implement achievable long-term infrastructure management goals in coordination with City schedules.

Offeror: Bucknam Infrastructure Group, 3548 Seagate Way, Suite 230, Oceanside, CA 92056; Company FID # 45-2723662

Mr. Steve Bucknam, P.E. (Principal) will be responsible for all project oversight and deliverables (steve@bucknam.net). Mr. Peter Bucknam (Project Manager) will be providing day-to-day operational and management services; he is authorized to sign the agreement for this contract. He can be contacted at 760-216-6529 (work) 714-501-1024 (cell) or email at peter@bucknam-inc.com.

By selecting *Bucknam Infrastructure Group, Inc.*, the City of Lake Elsinore will receive a strong, knowledgeable, innovative, and communicative team with the experience to implement a cost-effective pavement management program. Our handpicked pavement management professionals are committed to delivering quality services to the City. We have already scheduled time for your project and eagerly await our kick-off meeting with City staff and you.

This proposal is valid for ninety (90) days. The City's RFP is incorporated in its entirety as part of our proposal and all information submitted within our proposal is true and correct.

Respectfully submitted,

Bucknam Infrastructure Group, Inc.

Peter J. Bucknam
President/Project Manager

Project Understanding / Approach

As the City of Lake Elsinore's infrastructure matures, the City's staff is striving to update the City's Pavement Management Program (PMP) through cost effective condition surveys, engineering cost evaluation, budgetary reporting and data updates within the MicroPAVER database. The City's 2017 focus for field inspections will cover all defined streets within the network (189.3 miles) and will include the use of MicroPAVER v7.0.7.

The City requires a team that will not only resurvey the defined sections using cost-conscious methodologies but will create a comprehensive program that includes the enhancement of your multi-year PMP CIP, district maintenance, educational training, efficient bid documents, stewardship of the PMP, GIS links to the PMP and the knowledge of the inner workings of the MicroPAVER. Bucknam will provide these services through our proactive and accurate implementation of your PMP; we will address the City's primary goals of:

Primary Lake Elsinore PMP project goals:
Assess curent Lake Elsinore MicroPAVER PMP database (Bucknam currently hold the 2012-13 database); not database creation is needed
Updating MicoPAVER with 2017 ASTM D6433-16 Tablet based inpsections, work history and maintenance data
Surveying 189.3 miles of Arterial, Collector, Local streets; provide variance PCI reporting based upon 2012 PCI vs. 2017
Verifying / Updating pavement centerline and section mearsurement data (PMP vs GIS)
Generating 2017 Pavement Condition Index (PCI) rating for each segment
Developing and proactive preventative slurry seal / overlay rehabilitation schedules based on existing capital funding
Establishing solid recommendations for current / future maintenance needs
Utilizing the City's existing funding to generate a baseline five (5) year Capital Improvement Program
Recommending alternative maintenance budgets that demonstrate realistic return-on-investments

We have defined detailed phases to the scope of work in accordance to the City's RFP;

1. Project Implementation
2. Client Satisfaction
3. Project Schedule (See Section 4)
4. Scope of Work (Major Tasks)

1) Project Implementation

TASK 1.1: Project Kickoff

The first step in implementing a successful pavement management program truly resides in frequent communication and timely scheduled data updates. For the City of Lake Elsinore, it will be essential to establish, up front, the Public Works Department (Engineering/Maintenance & Operations) pavement management priorities. Our team will set a Project Kickoff meeting to further discuss and review in detail the expectations of the project, technical approach, section ID / GIS management & surveys, district/quadrant maintenance, software upgrades & use, deliverables within the scope of work and the review of schedule.

The first key topics to be discussed will include the review and assessment of the existing MicroPAVER pavement plan/data; its current and future use, survey areas based on recent maintenance work and schedules, new construction, data quality and condition, current pavement procedures, historical expenditure levels, implementation and desired service levels.

Deliverable: Meeting minutes, revised project schedule (if necessary)

TASK 1.2: Project Status Meetings - Quality Control Program

Status Meetings and Progress Reports

- Minimum of four meetings during the project (kickoff, field, and status meetings – 30%, 65% and 100%)
- Field review meetings
- Monthly progress status reports will be delivered to City project manager

PMP Quality Control (QC)

We will use a statistical sampling approach for measuring the quality of our field technician's work. In this manner, 10 percent (19 miles out of 189.3 miles) of the original surveys will be re-surveyed by an independent survey crew, supervised by a field supervisor, and the results will be compared to the original surveys. Our QC process involves checking the field crews' work in a "blind study" fashion. Quality control checks will be performed at the end of each survey week. This will ensure that all field personnel are properly collecting distresses and pavement quantities for all street segments. **Since we are collecting distress information on our field Tablets with the Lake Elsinore PMP database live, our staff will perform several quality control tests within the pavement management software using a sample set of the City of Lake Elsinore's street distress data.** This will ensure that all system and analysis settings as well as City recommendations and standards are being followed.

Bucknam is currently working with four (4) Riverside municipalities, they include: Hemet, Menifee, Lake Elsinore and Rancho La Quinta.

Over the past year, Bucknam has submitted eighteen (18) METRO compliant reports for LA municipalities, they include:

Pomona	Alhambra	Rosemead
Pico Rivera	Hermosa Beach	El Segundo
RPV	Culver City	Lomita
Monterey Park	Diamond Bar	Sierra Madre
Compton	La Habra Heights	South Pasadena
Palmdale	Arcadia	Bellflower

Over the past year, Bucknam has submitted fifteen (15) OCTA compliant reports for OC municipalities, they include:

Brea	Aliso Viejo	Laguna Beach
Costa Mesa	Seal Beach	RSM
Laguna Hills	Fullerton	Tustin
Fountain Valley	La Habra	Westminster
Huntington Beach	San Juan Capistrano	Santa Ana
Irvine	Newport Beach	San Clemente

Our field surveys follow the accepted ASTM D6433-16 windshield/walking requirements and are proven and continue to be utilized for our SoCal clients shown above. A copy of the QA/QC plan

utilized by our staff during the project will be submitted along with the PMP certification documents. **Deliverable: Monthly Project Status reports, field review and project status meetings, QA/QC Plan**

2) Client Satisfaction - TASK 2.1: Project Deliverables

Shown throughout our Scope of Work, each Task is summarized with project deliverables. Client satisfaction will derive from frequent communication with the Project Manager and key staff members from the Public Work department. Project success is created by delivering on three main factors;

1) Adherence to scope tasks and deliverables

2) Performing to the standard set by the Project Schedule; and

3) Controlling costs.

Our Project Manager will follow each of these factors throughout the duration of the project. **Deliverable: Project Status Updates, as stated in Task 1.2**

3) Project Schedule - TASK 3.1: Work Flow / Project Schedule

Our project schedule shows each major task identified in our scope of work, as well as quality control milestones and meetings. Bucknam currently has ample staff to apply to this project in order to meet an aggressive schedule (3 field technicians will drive the proactive schedule). **Per the request of the RFP, we have included the Critical Path Method (CPM) Project Schedule within Section 4 of our proposal.**

4) Scope of Work (Major Tasks)

TASK 4.1: PMP Assessment and Update PMP Database

Bucknam currently has the 2012-13 MicroPAVER files from our previous PMP update with the City (Lake Elsinore.e65). With this data, already in-hand, Bucknam can immediately begin work on the project and set up the necessary work history assessments and inspections. Bucknam will request a listing of all major work that has occurred since 2013 (overlay, slurry, etc.) to update specific section work histories and PCI ratings. Our staff will enter the necessary work history updates as mentioned above (i.e. data entry of maintenance / rehabilitation activities) into the City's updated MicroPAVER v7 PMP database.

The City is currently using the MicroPAVER version 6.5 pavement software to track and monitor pavement conditions and deterioration. For the City staff to be able to continually interact and update with the MicroPAVER PMP database Bucknam will assess and ensure that all pavement segmentation, public vs. private designations, section metrics and GIS links are of quality and useful to the long-term management of the PMP. If the City desires to upgrade their MicroPAVER software to v7.0.7 and install it at the City, Bucknam will provide this effort pro-bono. Further details in regard to GIS mapping work efforts are discussed within our Task 4.3 below. **Deliverable: Citywide PMP – GIS Link verification, Work History report.**

TASK 4.2: Pavement Condition Surveys

First and foremost, the assessment of the City's pavement segmentation is the one of the key priorities for this project. With five years between major inspections it will be essential to verify that all Local / Arterial segmentation is up-to-date and that section SF quantities are verified, accurate and reliable (i.e. new sections, assessing long-short sections). Once the pavement segmentation has been assessed and verified, the necessary inspections will be performed. It is the City's desire to survey all pavement sections this fiscal year. Our survey methodology will include the following approach based on the ASTM D6433-16 guidelines:

1. **Windshield / Walking** - All sections are surveyed through windshield / walking methodologies. Distress types will be collected based upon actual surface conditions and physical characteristics of the segment. Sample locations, distress types, extents and severities will be collected based upon actual surface conditions and physical characteristics of the segment. Surveying methods will be conducted by remaining consistent with ASTM D6433-16 sampling guidelines while being flexible to current City practices. Live GIS files will be used to enhance field survey locations, data access and quality control measures.

All sample locations are observed through walking surveys; additional unique conditional factors such as unique distress areas found outside our sample areas will be recorded.

- The inspection of approximately 189.3 miles of Arterial/Local streets will be performed;
    - Street measurements will be taken twice along each pavement section;
    - Distress areas that need further examination or where there are difficulties in observation will be surveyed via walking methodology;
    - Forward Facing Digital Video (See Task 4.8)
- Recent slurry seal maintenance and overlay rehabilitation projects that have been completed will reduce the amount of necessary survey, Bucknam will coordinate mileage reduction with City prior to survey.

2. **Automated Digital Roadway Imaging** (see Optional Task 4.8) survey; Our staff will establish all inspection sample locations for survey based on ASTM D6433-16 guidelines; **this effort replaces the windshield/walking field operations; all pavement condition inspections are then completed in-house through our automated processes. Where needed, windshield/walking surveys will be performed to enhance our automated surveys (i.e. QC, further site inspection, etc.).** Bucknam has recently performed this service for the cities of Aliso Viejo, Bellflower, Compton, Beverly Hills, Palmdale, Fountain Valley, Santa Ana, La Habra Heights and Palm Desert for PMP and ROW inspections.

Through our surveys, we use windshield/walking surveys based on the functional classification of the roadway and the street conditions found. We will use the City's GIS centerline live in the field to reduce survey times and project schedules. If the City has a recent high-resolution aerial (approx. 3") we will use this file during our field survey efforts to verify street measurements and other segment attributes.

Our use of **MicroPAVER-Tablet units allows our staff to collect pavement data with the City of Lake Elsinore's PMP database live in the field**. At the end each day all electronic data is transferred to our office for quality control and management.

Our Tablet methodology sets us apart from the competition since we are using a paper-less inventory process to enter data; this in turn generates cost savings to enhance other portions of the project such as CIP reporting, GIS implementation, PMP software training, and on-call services.

Roadway Verification Survey - A listing of the field attribute data that is updated/verified during the survey for the pavement management database is listed below:

1. **Field Attribute Data (updated and/or verified)**

Field Attribute Data (updated and/or verified)
From/to indicating the assigned section limts, street name, street codes (i.e. truck route, school zone, maint. Zone)
Street ranking indicating local, alley, arterial, collector, # of lanes, surface type
Street segmentation showing continuous W to E and S to N sections
Historical PCI tracking from previous inspection and 2017 PCI's
Segment quantities, indicating the length, width and true area of a section
Presense of curb & gutter
Structural sections (if available for previous reports of City data)

2. **Conditional data will be evaluated for all street segments and will include:**
   - 20 AC & 19 PCC distresses by type, severity and sample area
   - PCI ratings (0-100), taking into account the surface condition, level of distress
   - Drainage Condition Rating (standing water, etc.)

In developing the PMP and through our field surveys if our staff modifies or changes any street segment we will notify the City Project Manager and gain approval for such changes before any modifications are made. **We welcome staff members from the City of Lake Elsinore to join our surveys.** All items listed above will be maintained by our staff for the duration of this project. Data management will be performed in-house at our Oceanside office. At the completion of the project, the PMP database will be placed within your internal Public Works network.

3. **Section Distress and PCI Reporting**

Once inspections are completed, we will generate a draft Pavement Condition Index (PCI) Report for City staff to review. The City and our staff will review these reports to ensure that all inventory data is correct and the project is running smoothly. Our submittal will include:

1. PCI Variance report comparing 2012 PCI's to current 2017 PCI's
2. Street centerline miles, lane miles, and pavement area
   a. Pavement segment tabular listing for the entire street network; PCI Report – sorted by PCI (worst to best), PCI Report – sorted alphabetically
3. Creation of pavement performance curves and definitions for maintenance strategies, decision tree models and pavement life-cycle analysis

Deliverable: Citywide PCI Reports (30%, 65% and 100% status PCI reports), PCI Variance report

TASK 4.3: PMP – GIS Link / Mapping

As an enhancement and proactive approach to this project, our staff will update the existing Pavement-GIS link between the Lake Elsinore MicroPAVER software and the City's Pavement Management GIS layer(s). Bucknam established this link through our previous 2010 and 2012 work efforts. To ensure that all current pavement sections are accounted for Bucknam will assess all public vs. private streets, street naming conventions and "accepted/non-accepted streets" to ensure a one-to-one match is reflecting 2017 conditions. The City's current centerline will be used as base for updating the unique pavement-GIS layer and project files.

Prior to the start of our surveys, we will update the necessary PMP-GIS linkages to ensure that our field operations have both the MicroPAVER database and Lake Elsinore GIS to utilize for surveys. The unique section ID's within MicroPAVER and the City's GIS street segment ID's will create the one-to-one match. As new pavement inspections and edits are entered into the PMP the link that we have created will display the most current PMP data through the City's GIS.

The maps described below will be incorporated into the back of the City's Final PMP report and all digital GIS data will be provided to the City:

- PCI values for every section (symbolized through various PCI ranges); Work History identifications; Five-year Arterial, Residential Overlay, Slurry Seal Programs; District GIS Maps (if needed)

Deliverable: All GIS project data, Excel format as well as shapefiles, .mxd's, GIS map deliverables for all PCI and budgetary reports.

DEVELOP RECOMMENDED IMPROVEMENT PROGRAM

TASK 4.4: Maintenance and Rehabilitation, History and Decision Tree

We will assist the City in developing the most cost-effective preventative maintenance, repair and rehabilitation strategies possible. We will meet with the City to discuss and strategize maintenance activities/unit costs that are currently being used by the City. Based on the current available budget, AC & PCC applications/costs and other maintenance practices used we will conduct an historical and prospective analysis on the conditional / financial impact these practices have on your network. The maintenance strategies that are reviewed are localized stop gap maintenance, slurry seals, rehabilitation and reconstruction (R&R), the expected improvement in pavement condition, the life-cycle extension that would result and the unit costs for maintenance.

Based on this analysis, we will present our results and recommendations to City staff. This analysis will become an essential building block for the recommended 2017-2022 maintenance programs/scenarios. Bucknam will provide an engineering discussion that includes several sets of priority / cost-benefit analysis scenarios. A maintenance "decision tree" will be generated that match current 2017-18 maintenance approaches. This will be accomplished by assessing/updating the unique deterioration curves within the database based on functional class (i.e. arterial, collector, local) and age. Our staff will review the Lake Elsinore's deterioration curves that have been developed based on historical & 2017 PCI's, surface type and road class.

All maintenance practices/unit costs will be integrated into the MicroPAVER database and will be derived from the most recent construction bids for pavement rehabilitation. We will account for annual inflation rates and PMP project contingencies when long-term revenues projections are made. Our Project Manager and key staff will work closely with City in defining repair and rehabilitation strategies during each fiscal year and within each tract/area defined by the City. Once the repair/rehabilitation strategies have been defined, the identification of a five-year Forecasted Maintenance schedule will be generated. The recommended budget scenarios will be identified on the basis of several criteria:

- Present pavement conditions; Desired levels of service and available resources;
- City's maintenance districts and other capital projects (water, sewer);
- Accrued backlog levels and stabilization of maintenance backlog; and
- Future routine maintenance needs based on projected deterioration rates.

The primary emphasis of this task is to maximize the programming of street maintenance projects using the most cost-effective strategies available and taking into account a life-cycle cost analysis. A working "draft" Final Report will be generated for City staff to review. It will include:

- Executive Summary / Findings and Recommendations; purpose statement for PMP to establish goals and objectives; assessment of current and projected pavement condition (prediction modeling); Pavement Condition Index (PCI) reports;
- Multiple five-year CIP scenarios identifying arterial and residential maintenance recommendations (slurry, overlay, recon, etc.) associated with a construction cost; City will provide funding source budget allocations; recommendations for residential maintenance in "groupings" or districts; and GIS mapping.

Deliverable: Two (2) copies of the Draft PMP Report

TASK 4.5: Budgetary Analysis and Final PMP Reporting

We will deliver the Final Report to the City which will be essential for staff use/reference and beneficial for elected officials/upper management. The report will be prepared in a format that uses the information delivered by PMP in conjunction with the information and analysis performed by our team. The report will provide the City with information on:

- ❖ Presentation of PMP methods, finding and recommendations;
- ❖ Current inventory and pavement conditions indices (PCI) for all road classes;
- ❖ Projected annual rehabilitation programs for street maintenance for a seven-year period (ARTERIAL and RESIDENTIAL Forecast Maintenance Reports) that show the largest return on investment and acceptable levels of service;
- ❖ Modeling and comparison of budget scenarios typically include:
  - Current / Actual budget projection (citywide approach)
  - Annual CIP / Maintenance funding needed to "maintain" current PCI
  - Recommended Annual CIP / Maintenance funding needed to "increase" PCI;

- Strategies and recommendations for the City's County Measure funds, Local revenues, Gas Tax and maintenance programs and procedures, including a preventative maintenance schedule;
- A detailed breakdown of deferred maintenance (backlog); and

In summary, the final report be delivered within 12 weeks of the council award/NTP and will include:

Project Deliverables
A. Database in PAVER 7.0 format; digital file on CD/DVD (.e70 file)
- Pavement condition survey data
- Pavement rehabilitation recommendations based on PCI rating
- Budgetary Analysis Scenarios
B. Final PMP report; digital file on CD/DVD and one (1) hard copy

Deliverable: One (1) copy of the Final Pavement PMP Report, in binder and electronic form (.pdf), will be delivered. Bucknam will provide one (1) DVD copy of the Final PMP database.

Optional Services

TASK 4.6: PMP Training and Technical Support (Optional)

We will provide City staff with quality, certified training and the necessary skills needed to maintain the PMP. We will provide City staff with all collected pavement/GIS data, as well as updated operation manuals for both field data collection and software use. Peter Bucknam, who is certified in the use of MicroPAVER, will conduct comprehensive multi-day training sessions covering implementation, interfacing with the system, PMP methodologies, field survey practices, PCI calculations, budget needs analysis and editing/updating the database. Technical support will include the provision of up to 40 hours of PMP support for one year upon completion of the project. The agreement will to include the provision of onsite and telephone support for the City staff. Our typical On-Call services include:

- Additional budget scenarios, general reporting, deterioration studies; Additional visual inspections; Additional pavement management – GIS mapping; Additional MicroPAVER training, operational use; GIS Enterprise assessment, management, implementation, support

Deliverable: PMP software training, field and internal technical support

TASK 4.7: Presentation to the City Council (Optional)

On a pro-bono effort, Bucknam will prepare and present the PMP to the City Council and/or upper management. This effort will include the development and finalization of a PowerPoint presentation (approved by City staff); the report will reflect all data collected and reported on during the project. **Deliverable: PMP PowerPoint, assistance w/presentation to City Council**

TASK 4.8: Forward Facing Digital Video (Optional)

As part of our "Additive Scope of Work" Bucknam can provided Forward Facing Digital imagery through two unique survey options/methodologies:

- **Digital Roadway Video; or Digital Roadway Imaging**

Option 1 - Digital Roadway Video

Through this option Bucknam will utilize high-resolution (4K) imagining to record digital video data for each unique roadway segment. Bucknam will utilize a vehicle mounted camera and recording system to capture all necessary video for each pavement section with the Lake Elsinore PMP network. All imaging will be geo-referenced to the Section ID with MicroPAVER and to the GIS ID within the Lake Elsinore PMP GIS Pavement Management layer. This will allow City staff to quickly access and review conditions found during the 2017 surveys.

Option 2 - Digital Roadway Imaging

Bucknam provided this survey / digital roadway imaging technology in 2012 for the City of Lake Elsinore when we performed a citywide Sign Inventory project. Our staff will implement a pavement survey methodology that will support Task 4.2 efforts as well as implement a proactive and cost-efficient GPS survey methodology that will allow for the collection of numerous Lake Elsinore (City owned) assets and their GPS locations using **"one"** set of digital imagery (e.g. five citywide infrastructure surveys for the cost of one). **Beyond the pavement survey capabilities, the City will be able to collect other infrastructure assets in the future such as:**

- **Sign (Warning, Regulatory, Guide, City Unique signs, etc.;**
- **Catch basins, street lights, manholes/valves, hydrants, pavement markings, etc.**

With verification of street segmentation, the inspection of approximately 189.3 miles will be surveyed. ASTM D6433-16 - Army Corp of Engineers AC and PCC distress types will be collected based upon actual surface conditions and physical characteristics of the segment while being flexible to current City practices. Our automated digital imaging allows technicians to collect the following:

- Continuous pavement imaging (images taken every 5 meters, competition typically surveys at every 8 meters/25 feet intervals) = 360 degree imaging
- ASTM D6433-16 AC and PCC distresses (e.g. linear/transverse cracking, alligator, patching, bleeding, block cracking, etc.
- Imaging captures 100% of each pavement segment (not just one lane)
- 2mm pixel images allows for centimeter horizontal and vertical accuracy

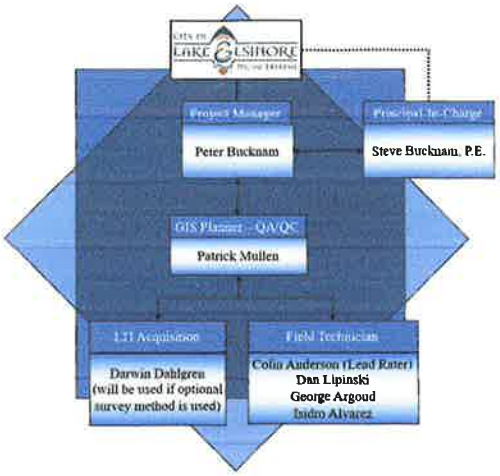
The survey process involves a two-week work effort with a mobile GPS vehicle to survey the network; additionally, the vehicles drive the posted speed limits. The images that are collected are taken by using Sony digital stereographic cameras (4 to 6 cameras) positioned on the vehicle. The images have a resolution of 2448 x 2050 and are geo-referenced by means of inertial GPS equipment contained within the van. All images taken are owned by the City and can be used for future data extraction within the Feature Extraction software.

Survey vehicles are equipped with digital measuring instrumentation (DMI) that will be used to verify all pavement section lengths and widths. The PCI conditional surveys will be performed by the Bucknam team (in-house, with 20% field QC review) that is experienced and trained in pavement condition assessment using LambdaTech's "Feature Extraction" software. Bucknam will utilize the identical survey methodologies described within Task 4.2.

Project Team – Key Staff

The *Bucknam* pavement management team's local agency expertise is demonstrated through:

- ❖ Our experience of managing pavement projects over the past nineteen years;
- ❖ Assisting cities comply with County PMP Propositions/Measures
- ❖ Implementing MicroPAVER throughout Southern California
- ❖ Extensive Riverside, Los Angeles, Orange, San Diego and Inland Empire PMP project management experience;
- ❖ Our understanding of public works projects from the "city" side through City Engineer and Public Works Director experience;



- ❖ Implementing a realistic, proactive and sustainable PMP methodology that matches your agencies needs and goals.

Bucknam will bring our extensive experience to the City of Lake Elsinore by building upon our knowledge and understanding of your PMP goals. Mr. Bucknam's pavement team includes six (6) dedicated, qualified managers and field technicians that have served under his management for over nineteen years on PMP projects. Mr. Bucknam's experience covers the management and implementation of pavement management programs that exceeds 42,250 miles of pavement for more than 75 cities and 200+ PMP projects.

Based on the scope of work related to this project, our team brings a tremendous amount of experience to the City of Lake Elsinore regarding field and in-house training for MicroPAVER and innovative survey methodologies (i.e. Tablet-based windshield and/or automated digital roadway imaging). We bring a wealth of experience through projects, pavement application knowledge and relationship building through trust and adherence to schedule.

No key person designated to this project will be removed or replaced w/o prior written consent from the City

Key Project Team / Experience

STEVE BUCKNAM, P.E., Principal-in-Charge, will be responsible for the overall performance of the project, day-to-day management and provide quality assurance review. Mr. Steve Bucknam is a licensed Civil Engineer (LIC #20903) and will oversee all tasks for this project. Mr. Bucknam is a former Deputy City Manager for Public Works and City Engineer of Norwalk, and City Engineer in Arcadia and Pacifica, California. He has over 45 years of professional experience and has managed street maintenance, reconstruction and improvement programs. He has developed and administered Street maintenance and improvement programs in those cities as well as the City of Newport Beach where he served as Design Division head. He has

extensive experience in capital program planning, pavement construction and budgeting for street improvement programs.

PETER BUCKNAM, Project Manager, has managed numerous pavement management projects over the past 19 years in the Southern California region and will be the Project Manager for Lake Elsinore's PMP project. Within this time, he has served as project manager for seventy agencies in the Southern California. Peter is committed to the project from the receipt of the notice-to-proceed through completion and furthermore he is a certified PMS software trainer on MicroPAVER and performed numerous training sessions for local agencies. **He has performed over 40 MicroPAVER training workshops.**

As the City moves into the "program management" phase for its pavement program, Mr. Bucknam brings his experience of working with individual cities for numerous years, where he has assisted cities from the onset (turn-key, data conversion) to high-end pavement management and GIS integration and County compliance. Our staff is proud of the numerous long-term, on-call PMP support contracts we continue to serve with local agencies (e.g. Lake Elsinore, Ontario, Fountain Valley, Huntington Beach, Irvine and John Wayne Airport).

Mr. Bucknam will bring new, fresh and proactive recommendations to this project and will identify realistic program management goals to assist the City in its upcoming CIP.

PATRICK MULLEN, GIS Planner, will oversee all GIS and PMP data migration prior and during the project. He drives all GIS creation, editing and deliverables for the project and is our key staffer for the ArcGIS Online web-hosting services that we provide. Mr. Mullen has been involved with over 56 pavement management projects within Riverside, San Diego, LA and Orange counties.

COLIN ANDERSON, (RATER) Lead Field Technician, will be the lead field surveyor for this project. His responsibilities will include project database assessment, survey preparation, surveying, quality control, and working with our management staff ensuring the updated PMP database is complete. He has been involved with over 55 pavement management projects and brings his wealth of PMP software, GIS and inspection experience to this project. **Colin is a certified ASTM D6433-16 inspector.**

DAN LIPINSKI, Field Technician, will be a supportive field surveyor for this project. His responsibilities will include surveying, quality control, and working with our management staff ensuring the updated PMP database is complete. He has been involved with over 52 pavement management projects and brings his wealth of PMP software, GIS and inspection experience to this project. **Dan is a certified ASTM D6433-16 inspector.**

GEORGE ARGOUD, Field Technician, will be a supportive field surveyor for this project. His responsibilities will include surveying, quality control, and working with our management staff ensuring the updated PMP database is complete. Mr. Argoud has been involved with over 28 pavement management projects and brings his wealth of PMP software, GIS and inspection experience to this project. **George is a certified ASTM D6433-16.**

Our team will be able to survey the entire 189.3 miles of pavement within eight (8) weeks' time due to our familiarity with the Lake Elsinore PMP network, experience, availability and man-power.

Peter J. Bucknam / Project Manager
Director of Infrastructure Management – GIS

EDUCATION

B.A., Geography – Urban Planning, San Diego State University, 1997

PROFESSIONAL DATA

Member, American Public Works Association
Member, Maintenance Superintendents Association
Chair, Transportation Committee, Inland Empire Report Card (ASCE) – 2005/06 & 2008/09
Co-Chair, Member APWA Committee for Street and Technology 2003-2015
Certificate of Professional Development – MicroPAVER
Certificate of Completion – OCTA MicroPAVER Distress Training (2011 thru 2018)
NASSCO – Certificate, National Pipeline Assessment Certification Program (PACP)

QUALIFICATIONS / EXPERIENCE OVERVIEW

Peter Bucknam is an expert in infrastructure project management, training, planning, resource management, implementation and program management. He has over twenty years' experience in the area of Geographic Information Systems and infrastructure asset management. Mr. Bucknam has managed a wide range of infrastructure project tasks including the collection and input of infrastructure survey data, preparation of Public Works capital improvement program projections and reports, infrastructure/software needs assessments, GIS/GPS data collection, data conversion and quality control.

Mr. Bucknam has performed infrastructure management services to over 70+ local agencies and is currently serving as project manager for numerous pavement management programs throughout Southern California. He has personally served as project manager for 220+ PMP projects throughout Riverside, San Bernardino, San Diego, Orange and Los Angeles counties. He has worked with over 25 Los Angeles cities and he is currently working with eighteen (18) of the 34 Orange County agencies regarding Measure M2 MicroPAVER compliance.

His project level and management experience covers: pavement/sidewalk management, Traffic Control Device Inventories (TCDI), GIS implementation, Traffic Signal surveys, Right-of-Way (ROW) surveys, and ADA survey/compliance. In managing over 200 infrastructure projects in the past sixteen years, Mr. Bucknam has used a diverse amount of software to assist local agencies implement infrastructure management programs and GASB 34. These programs include MicroPAVER, MTC StreetSaver, LambdaTech's GPSVision, CartéGraph, ESRI products, Crossroads, Lucity, GBA Master Series, and MapInfo.

Prior to joining *Bucknam Infrastructure Group, Inc.*, Mr. Bucknam served as Director of Infrastructure Management-GIS with an Engineering consulting firm where he managed numerous public works infrastructure/ROW projects ranging from surveying, maintenance life-cycles, cost & benefit analysis, financing and construction cost estimating. This included researching, surveying, converting and implementing multiple phase pavement management projects which provided better management practices, data efficiencies and GIS functionality within local governments and maintenance facilities. In addition, he provided technical (software) support for the on-going citywide PMS projects as well as developing capital improvement plans/budgets for integrating Tablet-GIS data management functionality into future maintenance efforts.

SAMPLE OF PETER BUCKNAM'S PROJECT MANAGEMENT EXPERIENCE (1997-2017)

- 2017 Pavement Management Program, City of Menifee

- 2017 Pavement Management Program, City of Newport Beach
- 2017 Pavement Management Program, City of Vista
- 2017 Sign Inventory Program, City of Rancho Palos Verdes
- 2017 Pavement Management Program, City of Fountain Valley
- 2017 Pavement Management Program, City of Lynwood
- 2017 Pavement Management Program, City of Compton
- 2017 Pavement Management Program, City of South Gate
- 2017 Pavement Management Program, City of La Habra
- 2016 Pavement Management Program, City of Hemet
- 2016 Pavement Management Program, City of Menifee
- 2016 Pavement Management Program, City of Pomona
- 2016 Pavement Management Program, City of Laguna Beach
- 2016 Pavement Management Program, City of Alhambra
- 2016 Public Works PMP Financing Study, City of Fullerton
- 2016 Pavement Management Program, City of San Clemente
- 2001-17 Pavement Management Program, City of Ontario
- 2016 Pavement Conversion – MicroPAVER to StreetSaver, City of Rancho Santa Margarita
- 2016-18 Pavement Management Program, City of Aliso Viejo
- 2016 Pavement Management Program, City of Huntington Beach
- 2016 Pavement Management Program – City of Santa Ana
- 2016 Pavement Management Program, City of Westminster
- 2016 Pavement Management Program, City of Fullerton
- 2015 Pavement Management Program, City of Monterey Park
- 2015 Pavement Management Program, City of Seal Beach
- 2015 GIS Program Management, City of Tustin
- 2015 Pavement Management Program, City of Norwalk
- 2015 GIS Program Management, City of Menifee
- 2015 Pavement Management, City of Menifee
- 2015 Pavement Management Program, City of South Pasadena
- 2015 Pavement Management Program, City of Rosemead
- 2015 Sign Inventory Program, City of Beverly Hills
- 2015 Pavement Management Program, City of San Juan Capistrano
- 2014 Pavement Management Program, City of Bellflower
- 2014-17 Pavement Management Program, City of Hermosa Beach
- 2014 Pavement Management Program, City of Arcadia
- 2008-15 Pavement Management Program, City of Santa Ana
- 2006-16 Pavement Management Program, John Wayne Airport
- 2014 Pavement Management Program, City of Lomita
- 2014 Pavement Management Program, City of Sierra Madre
- 2014 Pavement Management Program, City of Westminster
- 2014 Pavement Management Program, City of Aliso Viejo
- 2013-16 Pavement Management Program, City of Huntington Beach
- **2013-16 Pavement Management Program, City of Lake Elsinore - Digital Roadway Imaging**
- 2013 Pavement Management Program, City of Rancho Palos Verdes
- 2013 Pavement Management Program, City of Indian Wells HOA – Digital Roadway Imaging
- 2013 Pavement Management Program, City of San Juan Capistrano
- 2013 Pavement Management Program, City of Pomona
- 2013-16 GIS Annual Contract Services, City of Fountain Valley
- 2013 Pavement Management Program, City of Fountain Valley

C. Stephen Bucknam, Jr., P.E., Principal-in-Charge

EDUCATION

B.S., Civil Engineering, Loyola University of Los Angeles, 1967
M.S., Environmental Engineering, Loyola University of Los Angeles, 1972

PROFESSIONAL DATA

Registered Professional Engineer, States of California (No.20903) and Washington (No.17310)
California State Community College Teaching Credential
Fellow, American Society of Civil Engineers
Former, City Engineer, Deputy City Manager, City of Norwalk
Member, Board of Directors – Urban Water Institute
Life Member, American Public Works Association
Member, Water Environment Foundation
Member, University of California Irvine, Civil & Environmental Engineering Affiliates
Honorary Member, Chi Epsilon

EXPERIENCE OVERVIEW

Over forty years' experience in the administration, management, planning, design and construction management of public works and development programs and projects including: water and wastewater projects, pavement management programs, transportation, drainage, including: program management, master planning, infrastructure planning and maintenance programming, environmental studies, street, highway, alley, storm drain, water and sewer system design, rate studies, emergency planning, facilities design, groundwater studies, wells, reservoirs, site studies, pump stations, lift stations, intergovernmental negotiations and agreements, hydrology, treatment facilities, building design, grants, regulatory permitting, system appraisals, R/W negotiations, acquisitions and documentation, project management, production control, operations studies, capital improvement programming and budgeting, hydroelectric projects, underground utilities, assessment districts, surveying, mapping, legal testimony to public boards, commissions and councils, and direction of technical advisory committees to joint powers agencies and water districts.

Transportation / Streets – Highways - Traffic

Served as Contract City Engineer for the City of Arcadia responsible for long range advanced planning of the City's transportation engineering program. Directed the preparation of the City's Transportation Master Plan which identified, consistent with the City's General Plan the transportation related needs under these requirements so of AB 1600 nexus constraints.

Acted as Principal in charge over a Pacific Coast Highway (SR-1)/Newport Boulevard (SR-55) interchange, City of Newport Beach. Project involves a study of various alternatives, conventional and unconventional, for improvements to the existing interchange.

Restraints include limited right-of-way, environmental challenges (e.g., Newport channel bridge widening, "Arches" liquor store and restaurant property acquisition, and existing bridge aesthetics), and potential hazardous waste issues. Alternatives were evaluated and selected to include in the PSR. Included project coordination with various agencies and sub consultants, and oversight of concept geometries, cost estimating,

and report preparation.

Conceptual study, Project Study Report, and Project Report for I-710/Firestone Boulevard interchange modification and Firestone Boulevard improvements for City of South Gate. Also involved a feasibility study which included preparation of a traffic study, conceptual plans for several types of interchanges, construction cost estimates, and preliminary Caltrans Project Study Report. Prepared ISTEA National Highway System funding application for authorization and appropriation. Coordination with Caltrans District 7.

Mr. Bucknam has served as the working Principal / Civil Engineer for all pavement management related projects that Bucknam has performed. This includes projects listed below:

- 2017 Pavement Management Program, City of Menifee
- 2017 Pavement Management Program, City of Newport Beach
- 2017 Pavement Management Program, City of Vista
- 2017 Sign Inventory Program, City of Rancho Palos Verdes
- 2017 Pavement Management Program, City of Fountain Valley
- 2017 Pavement Management Program, City of Lynwood
- 2017 Pavement Management Program, City of Compton
- 2017 Pavement Management Program, City of South Gate
- 2017 Pavement Management Program, City of La Habra 2016
- 2017 Pavement Management Program, City of Alhambra
- 2016 Pavement Management Program, City of Hemet
- 2016 Public Works PMP Financing Study, City of Fullerton
- 2016 Pavement Management Program, City of San Clemente
- 2016 Pavement Management Program, City of Pomona
- 2016 Pavement Management Program, City of Laguna Beach
- 2016 Pavement Management Program, City of Ontario
- 2016 Pavement Conversion – MicroPAVER to StreetSaver, City of Rancho Santa Margarita
- 2016 Pavement Management Program, City of Aliso Viejo
- 2016 Pavement Management Program, City of Huntington Beach
- 2016 Pavement Management Program – City of Santa Ana
- 2016 Pavement Management Program, City of Westminster
- 2016 Pavement Management Program, City of Fullerton
- 2015 Pavement Management Program, City of Monterey Park
- 2015 Pavement Management Program, City of Seal Beach
- 2015 GIS Program Management, City of Tustin
- 2015 Pavement Management Program, City of Norwalk
- 2015 GIS Program Management, City of Menifee
- 2015 Pavement Management, City of Menifee
- 2015 Pavement Management Program, City of South Pasadena
- 2015 Pavement Management Program, City of Rosemead
- 2015 Sign Inventory Program, City of Beverly Hills
- 2015 Pavement Management Program, City of San Juan Capistrano
- 2014 Pavement Management Program, City of Bellflower
- 2014-17 Pavement Management Program, City of Hermosa Beach
- 2014 Pavement Management Program, City of Arcadia
- 2008-15 Pavement Management Program, City of Santa Ana
- 2006-16 Pavement Management Program, John Wayne Airport

Colin Anderson / Project Manager
Lead Field Technician (RATER)

EDUCATION

B.A., Geography – Urban Planning, Cal State San Marcos University, 2015

PROFESSIONAL DATA

Certificate of Professional Development – MicroPAVER
Certificate of Completion – OCTA MicroPAVER Distress Training (2015 thru 2018)
Certified ASTM D6433-16 Inspector – OCTA 2016, 2017

QUALIFICATIONS / EXPERIENCE OVERVIEW

Colin Anderson is an expert in pavement inspection implementation, quality control, training, planning, resource management and program management. He has over three years' experience in the area of local agency infrastructure management and Geographic Information Systems. Mr. Anderson currently oversees and serves as Bucknam Infrastructure Group's Lead Field Technician (RATER). He has managed over 20 unique Pavement Management Programs covering a wide range of infrastructure project tasks including the collection and input of infrastructure survey data, infrastructure/software needs assessments, GIS/GPS data collection, data conversion and quality control.

His project level experience covers: pavement/sidewalk management, Traffic Control Device Inventories (TCDI), GIS implementation, Traffic Signal surveys, Right-of-Way (ROW) surveys, and ADA survey/compliance. In managing over 20 infrastructure projects in the past three years, Mr. Anderson has used a diverse amount of software to assist local agencies implement infrastructure management programs. These programs include MicroPAVER, MTC StreetSaver, LambdaTech's GPSVision, CartéGraph and ESRI products.

Mr. Anderson has received ASTM D6433-16 Certification from the Orange County Transportation Authority which oversees the management of ALL pavement management programs within Orange County. This certification is required for any inspectors who perform PMP services within the County. This unique certification allows Mr. Anderson to ensure that all PMP inspections (including our additional surveyors) performed by Bucknam comply with ASTM D6433-16 requirements and PCI quality control.

SAMPLE OF MR. ANDERSON'S LEAD TECHNICIAN EXPERIENCE (2015-2017)

- 2017 Pavement Management Program, City of Menifee
- 2017 Pavement Management Program, City of Newport Beach
- 2017 Pavement Management Program, City of Vista
- 2017 Sign Inventory Program, City of Rancho Palos Verdes
- 2017 Pavement Management Program, City of Fountain Valley
- 2017 Pavement Management Program, City of Lynwood
- 2017 Pavement Management Program, City of Compton
- 2017 Pavement Management Program, City of South Gate
- 2017 Pavement Management Program, City of La Habra
- 2016 Pavement Management Program, City of Hemet
- 2016 Pavement Management Program, City of Menifee
- 2016 Pavement Management Program, City of Pomona
- 2016 Pavement Management Program, City of Laguna Beach

- 2016 Pavement Management Program, City of Alhambra
- 2016 Public Works PMP Financing Study, City of Fullerton
- 2016 Pavement Management Program, City of San Clemente
- 2001-17 Pavement Management Program, City of Ontario
- 2016 Pavement Conversion – MicroPAVER to StreetSaver, City of Rancho Santa Margarita
- 2016-18 Pavement Management Program, City of Aliso Viejo
- 2016 Pavement Management Program, City of Huntington Beach
- 2016 Pavement Management Program – City of Santa Ana
- 2016 Pavement Management Program, City of Westminster
- 2016 Pavement Management Program, City of Fullerton
- 2015 Pavement Management Program, City of Monterey Park
- 2015 Pavement Management Program, City of Seal Beach
- 2015 GIS Program Management, City of Tustin
- 2015 Pavement Management Program, City of Norwalk
- 2015 GIS Program Management, City of Menifee
- 2015 Pavement Management, City of Menifee
- 2015 Pavement Management Program, City of South Pasadena
- 2015 Pavement Management Program, City of Rosemead
- 2015 Sign Inventory Program, City of Beverly Hills
- 2015 Pavement Management Program, City of San Juan Capistrano

Patrick Mullen
GIS Planner

EDUCATION

Master's Degree – Public Administration (Urban – GIS Management), 2010
B.A., Geography –California State University, Fullerton, 2006

PROFESSIONAL DATA

Member, American Public Works Association
Advanced Geographic Information Systems - Certificate of Achievement, 2011
Member of Honors Society Pi Alpha Alpha

QUALIFICATIONS / EXPERIENCE OVERVIEW

Patrick Mullen is an expert in GIS infrastructure project supervision, QA/QC, training, planning, information management, implementation and program management, and has over ten years of experience in the area of Geographic Information Systems and infrastructure asset management. Mr. Mullen has supervised a wide range of infrastructure project tasks including the collection and input of infrastructure survey data, utility management, preparation of Public Works capital improvement program data, infrastructure/software needs assessments, GIS/GPS data collection, data conversion and quality control.

Mr. Mullen has performed infrastructure management services to over 40 local agencies and is currently serving as GIS Planner for numerous pavement management programs throughout Southern California. He has personally served as the GIS / QA-QC supervisor for 50 PMP projects throughout San Diego, Orange, Riverside, Imperial, and Los Angeles counties. He has worked with over ten (10) Los Angeles cities and he is currently working with fifteen (15) Orange County of the 34 OC agencies regarding Measure M2 MicroPAVER compliance.

His project level and management experience covers: pavement/sidewalk management, Traffic Control Device Inventories (TCDI), GIS Enterprise implementation, and Right-of-Way (ROW) surveys. In managing over 40 infrastructure projects in the past ten years, Mr. Mullen has used a diverse amount of software to assist local agencies implement infrastructure management programs. These software programs include MicroPAVER, MTC, LambdaTech's GPSVision, CartéGraph and ESRI products.

Prior to joining *Bucknam Infrastructure Group, Inc.*, Mr. Mullen served as a GIS/Data management analyst with the cities of Laguna Niguel and La Mesa where he supervised numerous GIS public works infrastructure/ROW projects ranging from surveying, mapping, critical infrastructure valuation, and construction cost estimating. This included researching, surveying, scheduling and implementing multiple phase infrastructure management projects which provided best management practices, data efficiencies and GIS functionality within local governments and maintenance facilities.

MR. PATRICK MULLEN'S PROJECT MANAGEMENT EXPERIENCE

- 2017 Pavement Management Program, City of Menifee
- 2017 Pavement Management Program, City of Newport Beach
- 2017 Pavement Management Program, City of Vista
- 2017 Sign Inventory Program, City of Rancho Palos Verdes
- 2017 Pavement Management Program, City of Fountain Valley
- 2017 Pavement Management Program, City of Lynwood

- 2017 Pavement Management Program, City of Compton
- 2017 Pavement Management Program, City of South Gate
- 2017 Pavement Management Program, City of La Habra
- 2016 Pavement Management Program, City of Pomona
- 2016 Pavement Management Program, City of Hemet
- 2016 Pavement Management Program, City of Menifee
- 2016 Pavement Management Program, City of Laguna Beach
- 2016 Pavement Management Program, City of Alhambra
- 2016 Public Works PMP Financing Study, City of Fullerton
- 2016 Pavement Management Program, City of San Clemente
- 2001-17 Pavement Management Program, City of Ontario
- 2016 Pavement Conversion – MicroPAVER to StreetSaver, City of Rancho Santa Margarita
- 2016 Pavement Management Program, City of Aliso Viejo
- 2016 Pavement Management Program, City of Huntington Beach
- 2016 Pavement Management Program – City of Santa Ana
- 2016 Pavement Management Program, City of Westminster
- 2016 Pavement Management Program, City of Fullerton
- 2015 Pavement Management Program, City of Monterey Park
- 2015 Pavement Management Program, City of Seal Beach
- 2015 GIS Program Management, City of Tustin
- 2015 Pavement Management Program, City of Norwalk
- 2015 GIS Program Management, City of Menifee
- 2015 Pavement Management, City of Menifee
- 2015 Pavement Management Program, City of South Pasadena
- 2015 Pavement Management Program, City of Rosemead
- 2015 Sign Inventory Program, City of Beverly Hills
- 2015 Pavement Management Program, City of San Juan Capistrano
- 2014 Pavement Management Program, City of Bellflower
- 2014-17 Pavement Management Program, City of Hermosa Beach
- 2014 Pavement Management Program, City of Arcadia
- 2008-15 Pavement Management Program, City of Santa Ana
- 2014-16 Pavement Management Program, John Wayne Airport
- 2014 Pavement Management Program, City of Lomita
- 2014 Pavement Management Program, City of Sierra Madre
- 2014 Pavement Management Program, City of Westminster
- 2013-16 Pavement Management Program, City of Aliso Viejo
- 2013-16 Pavement Management Program, City of Huntington Beach
- 2013-16 Pavement Management Program, City of Lake Elsinore - Digital Roadway Imaging
- 2013 Pavement Management Program, City of Indian Wells HOA – Digital Roadway Imaging
- 2013 Pavement Management Program, City of San Juan Capistrano
- 2013 Pavement Management Program, City of Pomona
- 2013-16 GIS Annual Contract Services, City of Fountain Valley
- 2013 Pavement Management Program, City of Fountain Valley
- 2013 Pavement Management Program, City of Huntington Beach

Relevant Project Experience

The following project experience presents our description of work, its relevance in completing similar projects for numerous other agencies, Measure A & C, METRO compliance, OCTA Measure M & M2 PMP experience, PMP software training expertise, and the broad knowledge of our pavement project team. Our project team brings over 75 years of public/private engineering and data management experience to the City of Lake Elsinore. This includes over 200+ PMP projects covering turn-key projects, simply training of City staff with pavement management methods, County Measure/Proposition compliancy, financial strategies and Capital Improvement Programs.

Mr. Steve Bucknam, P.E. (Principal) and Mr. Peter Bucknam (PM), have worked with over five (5) Riverside County local agencies, seven (7) San Diego County local agencies, over half the cities within Orange County and 30+ Los Angeles county cities regarding pavement management projects. Our PMP team successfully managed the OCTA Pavement Management Software project where he interviewed all 35 Orange County agencies regarding their unique PMP needs and successfully approved MicroPAVER for County wide use.

Currently our PMP team is assisting four (4) Riverside County agencies with their pavement management program; these include Hemet, Lake Elsinore, Menifee and Rancho La Quinta. Additionally, we are working with several of Lake Elsinore's neighboring local agencies such as Pomona, Ontario and Vista.

Over the past nineteen years, we have worked on numerous projects similar to Lake Elsinore's current PMP project. We have listed five (5) similar "long-term" pavement management projects that cover the same task descriptions as listed in your RFP (all use MicroPAVER and all were managed by our listed Project Management team – See Project Team, Section 3).

1. FY 2010/17 – City of Santa Ana, "Citywide Pavement Management Program"
2. FY 2015/18 – City of Menifee, "Citywide Pavement Management Program"
3. FY 2008/19 – City of Irvine, "Citywide Pavement Management Program – GIS"
4. FY 2016/17 – City of Hemet, "Citywide Pavement Management Program – GIS"
5. FY 1998/16 – City of Fountain Valley, "Citywide PMP, GIS Intranet Implementation"

Bucknam Infrastructure Group, Inc.

Pavement Management – GIS Program
City of Santa Ana (2008-2017)

Mr. Kenny Nguyen, Senior Civil Engineer – (714) 647-5632
20 Civic Center Plaza, Santa Ana, CA 92701 knguyen@santa-ana.org

Bucknam was contracted in 2008 to perform a citywide Pavement Management Program for the City of Santa Ana and has continued to provide proactive conditional and CIP preventive/rehabilitation recommends through 2016. Our long-standing relationship with the client actually goes back to 2001 where our Project Manager worked with the City in establishing MicroPAVER. During this time span our team has assisted the City in analyzing the application and benefit of various pavement practices such as CIR, CTB, slurry seal and cape seal. Today, the

Santa Ana PMP is updated every two years through Bucknam's infrastructure management and GIS services.

Citywide Pavement Management Program
City of Menifee (2015-2018)

Mr. Jonathan Smith, Director of Public Works/City Engineer – (951) 723-3723
29714 Haun Road, Menifee, CA 92586 matt_pilarz@ci.pomona.ca.us

In 2015, Bucknam was contracted to perform a citywide pavement management inventory for the City of Menifee. This project consisted off a complete turn-key effort in "re-segmenting" the City's PMP network, converting previous PCI inspection data, performing an ASTM D6433 based survey, implementation of MicroPAVER and GIS integration.

In working with Engineering/Public Works staff Bucknam was able to quickly and accurately implement a pavement management program that was well-received by staff. Additionally, our services included a complete evaluation of the City's PMP budget, short-term and long-term budgetary analysis (Actual, Maintain and Recommended budgets) and GIS services that linked the City's MicroPAVER database to the City's GIS enterprise.

Since the project completed Bucknam has provided technical and management support services to the PMP. Bucknam was recently selected to support the Menifee PMP through FY 2018.

Citywide Pavement Management Program Update
City of Irvine (2008-2019)

Mr. Joe Dillman, Public Works Street Supervisor – (949) 724-7696
6427 Oak Canyon, Irvine, CA 92618 (jdillman@ci.irvine.ca.us)

Bucknam was recently selected by the City of Irvine to perform a citywide conversion of their previous CHEC pavement software to MicroPAVER as well as perform 400 miles of pavement survey. Our staff developed a citywide capital improvement plan that proactively developed an OCTA Measure M2 compliant MPAH network and a local maintenance zone program that will garner the greatest return-on-investment for the City.

All MicroPAVER data was be linked to the City's GIS system through the GBA Master Series software. Based on our assessment, conversion and implementation efforts, the City contracted with our firm through fiscal year 2014 for pavement management services.

Additionally, our staff is currently performing pavement management and inspection services on all designated "off-street" bike and trail pathways, park sidewalk and facility hardscapes. Our firm will be supporting the City with PMP services through fiscal year 2019.

Citywide Pavement Management Program
City of Hemet – 2016 - 2017)

Mr. Nino Abad, City Engineer – (951) 765-3847
510 E. Florida Avenue, Hemet, CA 92543 nabad@cityofhemet.org

Bucknam was selected by the City of Hemet to perform a citywide pavement management program. This included the assessment of the City existing CarteGraph PMP software and GIS network. Bucknam performed the necessary ASTM D6433 inspections and generated a multi-year preventative maintenance and capital overlay program for the City. Bucknam presented the PMP findings to the Hemet City Council to make there aware of the current and future PMP needs. This contract also includes the management and oversight of the City PS&E slurry / overlay programs.

Citywide Pavement Management Program
City of Fountain Valley (1998-2017)

Mr. Mark Lewis, Director of Public Works / City Engineer – (714) 593-4435
10200 Slater Avenue, Fountain Valley, CA 92708 (mark.lewis@fountainvalley.org)

Mr. Peter Bucknam has managed the City of Fountain Valley's pavement management program for over eighteen (18) years and is currently finishing the 2014-15 annual update for the City's MPAH Measure M2 compliance. Mr. Bucknam has overseen eight phases of pavement survey, built the City's Pavement-GIS layer, and assisted the City in accomplishing the overlay of more than 90% of the City's arterial network. Initially, our firm converted all pavement data from CarteGraph to **MicroPAVER** based on the use of the program from surrounding agencies and its integration into the City's GIS Enterprise program.

Bucknam also serves as the City's GIS consultant where we provide citywide GIS services to all departments within the City. This includes Public Works, Utilities, Planning, Police, Fire and Code Enforcement.

Project Schedule

Our Critical Path Method (CPM) project schedule shows each major task identified in our scope of work, as well as quality control milestones and meetings. Our Principal will oversee all aspects of the project schedule including annual accountability, adjustment and management. Our Project Manager will support the project schedule and management through weekly updates and internal project meeting.

See key milestone dates from the project schedule above:

- Project Kickoff – July 6, 2017
- Database Assessment and Preparation – mid July
- Survey Start and Completion – July 20 through September 14, 2017
- Delivery of draft PMP – September 18, 2017
- City comments returned to Consultant – September 27, 2017
- Delivery of City CIP Final Report – November 4, 2017
    - Lake Elsinore CIP data/Final Report, reporting and revenue projections will be submitted by September 2017
- Implementation of PMP software/database – Any time after acceptance of Final PMP
- All pavement and GIS data pertinent to the project deliverables will be submitted with the Final PMP report, November 2017

Fee Proposal (Original Scope of Work)

Bucknam Infrastructure Group, Inc. has included a time and materials, not-to-exceed lump sum proposed fee for the Original Scope of Work (separate envelope). Our fee follows the described tasks shown within the original Scope of Work.

Additionally, per the request of the City we have included a secondary fee proposal to perform the "Additive Scope of Work" item Forward Facing Digital Video. These costs are separate from our original Scope of Work items.

As indicated within our fee, all tasks are negotiable.

Fee Proposal (Forward Facing)

Bucknam Infrastructure Group, Inc. has included a time and materials, not-to-exceed lump sum proposed fee for the Forward Facing Digital Video Additive Scope of Work (separate envelope). Our fee follows the described tasks shown within the Additive Scope of Work (Optional Task 4.8).

Additionally, per the request of the City we have included a fee proposal to perform the "Original Scope of Work" items. These costs are separate from our Forward Facing Digital Video Scope of Work items.

As indicated within our fee, all tasks are negotiable.

	Description	Principal	Project Manager	GIS Planner	Field Technician(s)	Admin	Total by Task
	Base Fee	$250/hr	$180/hr	$140/hr	$88/hr	$75/hr	
Task 1	**Kick-off Meeting PMP Services**						
Task 1.1	Project Kick-off	1	2	1			$750
Task 1.2	Project Status Meetings - Quality Control Program		4	4	36		$4,448
Task 2	**Client Satisfaction**						
Task 2.1	Project Deliverables	1	4	3		2	$1,540
Task 3	**Project Schedule**						
Task 3.1	Work Flow / Project Schedule	2	4		2	3	$1,621
Task 4	**Scope of Work**						
Task 4.1	**PMP Assessment and Update PMP Database**						
	Assessment of MicroPAVER, GIS ID Link		2	3	12		$1,836
	Pavement Work History Data Entry		1	1	12		$1,376
Task 4.2	**Pavement Condition Surveys (189.3miles)**						
	Arterial and Local Street Survey (Winshield survey)	1	12	8	230	4	$24,070
Task 4.3	**PMP - GIS Link / Mapping**						
	PMP - GIS Layer Update/Implementation		2	22	8		$4,144
Task 4.4	**Maintenance & Rehabilitation, History and Decision Tree**	1	8		2		$1,866
Task 4.5	**Budgetary Analysis and Final PMP Reporting**	1	28	8	2	1	$6,661
	Reimbursables (printing, materials)						$3,280
	All deliverables will become property of the City of Lake Elsinore **All Tasks are negotiable**						
	Total Hours per Staff	**7**	**67**	**50**	**304**	**10**	
	Total Base Fee	***$ 1,750***	***$ 12,060***	***$ 7,000***	***$ 26,752***	***$ 750***	***$51,592***
	Optional Tasks						
Task 4.6	**PMP Training and Technical Support**		4	12	24		$4,512
Task 4.7	**Presentation to the City Council**						***Pro Bono***
Task 4.8	**Forward Facing Digital Video (Citywide - 189.3 miles)**			See Secondary Fee Proposal - Forward Facing Digital Video			

Additional services outside of this contract will be negotiated with the City where we will use the Standard Hourly Rate Schedule

	Description	Principal	Project Manager	GIS Planner	Field Technician(s)	Admin	Total by Task
	Forward Facing Digital Video Base Fee	$250/hr	$180/hr	$140/hr	$88/hr	$75/hr	
Task 4.8	**Forward Facing Digital Video (Citywide - 189.3 miles)**						
	Optional 1 - Digital Roadway Video						
	- Vehical mounted 4K imaging (Collected, geo-referenced for all sections)	2	4	16	18	1	$5,119
	Reimbursables (printing, materials)						$950
	All deliverables will become property of the City of Lake Elsinore						
	Total Option 1 Base Fee						***$6,069***
Task 4.8	**Optional 2 - Digital Roadway Imagery (Citywide - 189.3 miles)**						
	* Cost includes mobilization + Bucknam 15% markup						$17,900
	All digital images complete with GPS coordinates @ 15ft intervals						
	All imagery will be owned by City						
	This option allows for additional asset inventories to occur:						
	Sign Inventory (typically $3.85 per point)						TBD
	Catch Basins (typically $2.75 per point)						TBD
	Manholes (typically $3.00 per point)						TBD
	Street Striping, Legends (typically $2.75 per point)						TBD
	Fire Hydrants, etc. (typically $2.50 per point)						TBD
	Other asset to be identified at a later date						TBD
	Reimbursables (printing, materials)						$950
	All deliverables will become property of the City of Lake Elsinore						
	Total Option 2 Base Fee						***$18,850***
	All Tasks are negotiable						

Additional services outside of this contract will be negotiated with the City where we will use the Standard Hourly Rate Schedule

Standard Hourly Rate Schedule

Category	***Rate***
Principal	*$ 250*
Senior Project Manager	*215*
Senior Engineer / Planner	*195*
Construction Manager	*185*
Pavement Management Project Manager	*180*
Management Analyst	*165*
Project Engineer / Planner	*155*
Senior Engineer / Senior Technician / GIS Planner / Senior Inspector	*140*
Asst. Engineer / Asst. Technician / GIS Analyst / Inspector	*130*
CADD Operator	*110*
Administrative Assistant	*105*
Field Technician / GIS Technician	*88*
Clerical / Word Processing	*75*
Forensic Services	*Quote*
Reimbursables	
Mileage	*$ 0.65/mile*
Subconsultant Services	*Cost*
Reproduction	*Cost*
Travel & Subsistence	*Cost*
Fees & Permits	*Cost*
Computer Services (External)	*Cost*

Standard Hourly Rates shown will not be changed and/or increased during the contract period

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